

## WHAT IS CLAIMED IS:

1. An AM (Amplitude Modulation) detecting apparatus comprising:
  - a coherent detection circuit for carrying out coherent detection of a desired signal in an AM signal with reference to a VCO (voltage-controlled-oscillation) signal to generate a detection signal;
  - a first comparator for comparing the detection signal with a no-signal potential;
  - control means for outputting one of a first control signal and a second control signal in a first state, and for outputting the first control signal in a second state; and
  - a phase adjusting circuit for adjusting a phase of the VCO signal in such a manner that a phase difference between the AM signal and VCO signal is set at one of first and second phase differences corresponding to the first and second control signals.
2. The AM detecting apparatus according to claim 1, wherein the first state is a state in which the amplitude of the AM signal is higher than a reference value, and the second state is a state in which the amplitude of the AM signal is lower than the reference value.
3. The AM detecting apparatus according to claim 2, wherein said control means outputs, while the amplitude of the AM signal is higher than the reference value, the first control signal when the detection signal is lower than the no-signal potential, and the second control signal when the detection signal is higher than the no-signal potential.

4. The AM detecting apparatus according to claim 3, wherein said control means includes a second comparator for comparing the detection signal with an inversion-detection threshold, and wherein said control means outputs, while the amplitude of the AM signal is higher than the reference value, the first control signal when the detection signal is lower than the no-signal potential or the detection signal is higher than the inversion-detection threshold value, and the second control signal when the detection signal is higher than the no-signal potential and lower than the inversion-detection threshold value.

5. The AM detecting apparatus according to claim 2, wherein said control means compares a gain control signal of an AGC circuit, which controls a gain of an amplifier for amplifying the AM signal, with a predetermined threshold value, and makes a decision as to whether the amplitude of the AM signal is higher than the reference value.

6. The AM detecting apparatus according to claim 2, wherein said control means makes a decision as to whether the amplitude of the AM signal is higher than the reference value by comparing a lower-side peak value of the detection signal with a predetermined threshold value.

25

7. The AM detecting apparatus according to claim 2, wherein said control means makes a decision as to whether the amplitude of the AM signal is higher than the reference value by comparing the detection signal with a predetermined threshold value.

30

8. The AM detecting apparatus according to claim 7, wherein said control means comprises a weak field detector including a voltage comparator and a capacitor, and wherein said weak field detector compares the detection signal with the predetermined threshold value.

9. The AM detecting apparatus according to claim 1, wherein said control means comprises a selecting switch for selecting an inversion-detection threshold value in response to an amplitude of the AM signal; and a second comparator for comparing the detection signal with the inversion-detection threshold value selected by said selecting switch, and wherein said control means outputs one of the first and second control signals in response to a comparison result of said second comparator.

10. The AM detecting apparatus according to claim 1, wherein said control means comprises a second comparator for detecting an upper-side peak value and a lower-side peak value of the detection signal, and for comparing a difference between the upper-side peak value and the no-signal potential with a difference between the lower-side peak value and the no-signal potential, and wherein said control means outputs one of the first and control signals in response to comparison results of said first and second comparators.